Remote Matching Service

Technical Specifications

Version: 2.1.x

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Date: Friday, June 17, 2022

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Documentation Notice

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About this Document

This document provides the technical specifications for RMS. Use the requirements provided in this document as a guideline. Your specific needs are highly dependent on many factors including the number of records in the search pool, the record size and complexity, desired throughput and the load put on the system by other applications.

About Remote Matching Service

The Remote Matching Service (RMS) provides centralized search services to applications such as Brainware Intelligent Capture (BIC) Runtime Server and BIC Verifier, and a web-based administration client. RMS is also capable of supporting large search data pools

RMS users are generally concerned with achieving a minimum system throughput, usually thought of in terms of the number of documents that can be processed in a given time period. The information provided here is in terms of requests per hour. It is important to note that there is no fixed relationship between requests and documents; the exact relationship is based on the configuration of each document class in the project. Some document types may require only a single search of the data pool, while others may require several searches for each document.

Compatibility

The following table lists the BIC versions compatible with Remote Matching Service.

Releases	BIC 5.7.x	BIC 5.8.1	BIC 5.9.x	BIC EP1	BIC EP 2
RMS 2.1.x	Yes	Yes	Yes	Yes	Yes
RMS 2.0.x	Yes	Yes	Yes	No	No

Search techniques

RMS can use either the ASSA technique or the record search technique. Each has different hardware requirements to achieve a given throughput.

ASSA

When using the ASSA search technique, each engine instance has the ability to service one request with one CPU core for a pool with up to one million records. For larger search pools, the engine automatically distributes the search to smaller ASSA pools of a million records each.

This means that for pools up to two million records, a single query will use two CPU cores. The ASSA technique is not recommended for pool sizes exceeding two million records. 8GB of memory is recommended.

The following table provides approximate throughput for a representative ASSA search pool of various sizes and available CPU cores. The information assumes two search requests per document.

No. of records	Instances	Used Cores	Requests/Minute	Requests/Hour
100,000	4	4	1,780	106,800
100,000	8	8	2,800	168,000
500,000	4	4	450	27,000
500,000	8	8	717	43,020
1,000,000	4	4	243	14,580
1,000,000	8	8	366	21,960
2,000,000	4	4	190	11,400

Record search

The Record Search technique generally supports higher throughput rates, especially for larger search pools. When using the Record Search technique, the engine automatically distributes the search depending on the number of available CPU cores and the current load.

The engine cannot be configured to use only a certain number of cores. More CPU cores give a greater throughput up to a point. Adding more than 32 CPU cores does not significantly improve throughput relative to the added cost as other system factors start to have an increasing effect. In general, multiple smaller machines will yield better throughput than one very large machine.

The following table provides approximate throughput for a Record Search pool of various sizes and available CPU cores. The information assumes two search requests per document.

Documents	Instances	Used Cores	Requests/Minute	Requests/Hour
100,000	8	8	11,000	660,000
500,000	8	8	4,000	240,000
1,000,000	8	8	2,112	126,720
2,000,000	8	8	1,100	66,000

Server Requirements

Processor: as a minimum requirement, use a processor running at 3GHz.

Memory: 8GB of memory is recommended.

Database (SQL): Microsoft SQL Server 2012, 2014, 2016, or 2017.

Database (Oracle): Oracle 12c, Oracle 12c R2.

Additional server requirements

Operating Systems	• Windows Server 2019 • Windows Server 2016 • Windows Server 2012 • Windows 10 **Note:** Only 64-bit operating systems are supported.
Software	• Java Runtime Environment 8 or 7 **Note:** Please make sure to use a version that is appropriate for your operating system (64-bit). • Apache Tomcat 8.5 or 9 • Microsoft Visual C++ 2008 SP1 Redistributable Package (x64)

RMS Memory Troubleshooting

If indexes are failing to be created or the indexes take an increasing amount of time to create, the memory of the server can be increased.

In order to increase the memory of the Tomcat server the application TomcatXw.exe must be used, where X is the tomcat version number (ex. Tomcat9w.exe). This application can be found in the bin directory of the tomcat application folder. Launch the application and navigate to the Java tab. Once here the memory can be adjusted by entering the new maximum memory pool in megabytes.

If one large Index is planned to be used on the server these index sizes and memory pool sizes can be used as a guideline.

Tomcat Memory Pool	Maximum size of only Index
256 MB	500 Thousand
512 MB	2 Million

Tomcat Memory Pool	Maximum size of only Index
1024 MB	6 Million
1500 MB	9 Million

*Index sizes are approximate and will vary from system to system.

If many smaller indexes (less than 1 million record indexes) are planned to be used on the server, the total number of records across all the indexes can calculated and the below chart can be used as a guideline.

Tomcat Memory Pool	Sum of records across all Indexes
256 MB	4 Million
512 MB	11 Million
1024 MB	25 Million
1500 MB	36 Million

*Index sizes are approximate and will vary from system to system.